

REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-9 remain in the application. Claim 1 has been amended to specify that the pan provides structural rigidity, as described in paragraph [0020] of the specification.

In Section 1 of the Detailed Action portion of the Office Action, claim 1 has been rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The use of the phrase "rigid pan" was considered to be new matter, since the specification did not use that phrase, but rather states that the pan is used to provide structural rigidity. This rejection is traversed through the above amendment to claim 1, wherein the amended claim language now requires that the pan provides structural rigidity, using the same terminology as set forth in paragraph [0020] of the specification. No new matter has been added.

In Section 2 of the Detailed Action portion of the Office Action, claims 1-9 have been rejected under 35 U.S.C. 102(b) as being anticipated by Alt et al. (U.S. Patent No. 6,198,445 B1). As per claim 1, Alt et al. was cited as teaching "a conformal load-bearing antenna assembly" comprising: a pan shaped to fit within an aircraft window opening (Alt et al., column 2, lines 14-26); an antenna element disposed within the pan (Alt et al., figure 1, radiating element 14; column 3, line 62-column 4, line 24); a connection for coupling a signal to the antenna element (Alt et al., column 4, lines 2-24). This rejection is traversed.

The Applicants respectfully submit that the present invention as defined in amended claim 1 includes features that are neither disclosed nor suggested by Alt et al. In particular, the present invention as defined in claim 1 includes a pan providing structural rigidity and shaped to fit within an aircraft window opening.

Alt et al. discloses a conformal load bearing antenna structure. In the antenna structure of Alt et al., "the top face sheet, the dielectric, the structural core, and the bottom face sheet are configured to provide structural strength to the aircraft when the

antenna is attached to the outer skin thereof”, (see the abstract and col. 7, lines 10-13). While Alt et al. discloses an antenna structure having a pan 26, the Applicants respectfully submit that the pan of Alt et al. does not provide structural rigidity. In fact, Alt et al. states in column 6, at lines 2-4, that “...the absorber pan 26 is not constructed to provide any structural strength and/or rigidity to the antenna structure 10”, (emphasis added). Thus, Alt et al. teaches away from the invention of amended claim 1. Alt et al. neither discloses nor suggests the use of a pan to provide structural rigidity.

In addition, Alt et al. neither discloses nor suggests an antenna that can be inserted into a window opening. The portion of Alt et al. (column 2, lines 14-26) cited in the Office Action as showing this feature, does not disclose or suggest that the pan is shaped to fit within an aircraft window opening. Column 2, lines 14-26 of Alt et al. states that the antenna is attached to an outer skin of the aircraft. Thus it is apparent that the antenna structure of Alt et al. is designed to be attached to an outer skin of an aircraft. In contrast, the present invention is designed to be installed in a window opening. Since the present invention and the antenna of Alt et al. are designed to be placed in different locations on an aircraft, the two antenna assemblies must be designed to withstand different structural loads. In particular, the antenna assembly of the present invention is designed to withstand the structural loads previously withstood by a window, while the assembly of Alt et al. must withstand different structural loads. The pan of the present invention provides the required rigidity for an antenna structure that fits within a window opening. Alt et al. neither discloses nor suggests that the pan can provide the necessary structural rigidity, and in fact, Alt et al. specifically teaches away from using the pan to provide structural rigidity.

With respect to claim 2, Alt et al., column 4, lines 34-58 was considered to show an antenna element comprising a stripline supported by a dielectric sheet, and at least one radiating element couple to stripline. Since claim 2 depends from claim 1, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claim 1, and for the following reason. The radiating element 14 of Alt et al. is described as “a single ply of metalized polymeric material etched into four spiral

patterns 15.” (column 3, lines 63-65). The radiating element 14 of Alt et al. is therefore not a stripline, as is required by claim 2.

With respect to claim 3, Alt et al., column 6, lines 38-57 was considered to show an antenna element further comprising a front ground plane and a back ground plane, with the front ground forming one or more slots adjacent to the radiating element. Since claim 3 depends from claims 1 and 2, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claim 1, and for the following reason. The Applicants respectfully submit that Alt et al. neither discloses nor suggests the use of front and back ground planes, with the front ground forming with one or more slots adjacent to the radiating element. Ground planes, by definition, must be electrically conductive. In Alt et al. the top and bottom face sheets 12 and 22 respectively, are made of non-conducting materials, such as fiberglass and epoxy, col. 3, lines 55-60 and col. 5, lines 22-25. The Applicants respectfully submit that column 6, lines 38-57, of Alt et al., cited in the Office Action, says nothing about a front and back ground plane as required in claim 3.

With respect to claim 4, Alt et al., column 4, line 59-column 5, line 37 was considered to show a conductive gasket positioned adjacent to the perimeter of the antenna element, electrically bonding the antenna to an aircraft fuselage and providing a pressure seal. Since claim 4 depends from claim 1, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claim 1, and for the following reason. The Applicants respectfully submit that Alt et al. neither discloses nor suggests the use of a conductive gasket positioned adjacent to the perimeter of the antenna element, electrically bonding the antenna to an aircraft fuselage and providing a pressure seal. In particular, the Applicants respectfully submit that column 4, line 59 to column 5, line 37, as cited in the Office Action, neither discloses nor suggests the use of a conductive gasket positioned adjacent to the perimeter of the antenna element, electrically bonding the antenna to an aircraft fuselage and providing a pressure seal. The only bonding mentioned in column 4, line 59 to column 5, line 37 of Alt et al. is “an appropriate non-conducting adhesive.” A non-conducting adhesive would not provide the electrical bonding required in claim 4 of the present invention.

With respect to claim 5, Alt et al., column 6, lines 5-34 was considered to show a pan forming a pressure seal with the aircraft window opening. Since claim 6 depends from claim 1, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claim 1, and for the following reasons. The Applicants respectfully submit that Alt et al. neither discloses nor suggests an antenna assembly that fits in a window opening. Thus Alt et al. neither discloses nor suggests the use of a pan to form a pressure seal with the aircraft window opening. Column 6, lines 5-34 of Alt et al., cited in the Office Action, do not show such a structure and do not say anything about a pressure seal.

With respect to claim 6, Alt et al., column 6, lines 5-53 was considered to show a bonding strap for carrying lightning currents from the antenna structure to a fuselage of the aircraft. Since claim 6 depends from claim 1, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claim 1, and for the following reasons. The Applicants respectfully submit that Alt et al. neither discloses nor suggests a bonding strap for carrying lightning currents from the antenna structure to a fuselage of the aircraft. In particular, column 6, lines 5-53, cited in the Office Action, do not show a bonding strap for carrying lightning currents from the antenna structure to a fuselage of the aircraft.

With respect to claim 7, Alt et al., figure 1, and column 5, lines 59 – column 6, line 37, was considered to show a front ground plane and a back ground plane electrically bonded to each other. Since claim 7 depends from claims 1, 2 and 3, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claims 1, 2 and 3, and for the following reasons. The Applicants respectfully submit that Alt et al. neither discloses nor suggests the use of front and back ground planes, with the front ground forming one or more slots adjacent to the radiating element. Ground planes, by definition, must be electrically conductive. In Alt et al. the top and bottom face sheets 12 and 22 respectively, are made of non-conducting materials, such as fiberglass and epoxy, col. 3, lines 55-60 and col. 5, lines 22-25. While column 5, at line 61 mentions a conductive mat, the Applicants respectfully submit that Alt et al., says nothing about electrically bonded front and back ground planes as required in claim 7.

With respect to claim 8, Alt et al., figure 1, and column 5, lines 57 – column 6, line 4, were considered to show a back ground plane bonded to the pan. Since claim 8 depends from claims 1, 2 and 3, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claims 1, 2 and 3, and for the following reasons. The Applicants respectfully submit that Alt et al. neither discloses nor suggests the use of a back ground plane bonded to the pan. While column 5, lines 61-63 mention a conductive mat in the pan, the Applicants respectfully submit that Alt et al., says nothing about a back ground plane bonded to the pan as required in claim 8.

With respect to claim 9, Alt et al., figure 1, strip line 30, was considered to show a tapered stripline. Since claim 9 depends from claim 1, this rejection is traversed for the reasons set forth above with respect to the traversal of the rejection of claim 1, and for the following reasons. The Applicants respectfully submit that Alt et al. neither discloses nor suggests a tapered stripline. A tapered stripline, such as item 92 in FIG. 9 of the present application, becomes progressively smaller toward one end. The transmission strip 30, in figure 1 of Alt et al., cited in the Office Action, is not a tapered structure since it does not appear to become progressively smaller toward one end.

All claims in the application are believed to be in allowable form. Allowance of the application is requested.

Respectfully submitted,

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